

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method comprising:

receiving a request from a first client device to multicast a file as a plurality of packets of data from a server device to multiple client devices by executing a multi-threaded application with at least one thread monitoring a port designated for receiving multicast requests;

executing at least three request handlers to manage requests from remote devices, the at least three request handlers comprising an upload request handler, a multicast download request handler and a unicast download request handler;

transmitting the plurality of packets of data from a server to the multiple client devices using a multicast trivial file transfer protocol (TFTP) as a TFTP-compliant flow;
and

applying, by the server, one or more flow control techniques not defined by the multicast TFTP to the TFTP-compliant flow, wherein the flow control comprises at least determining whether the server device has sufficient resources to satisfy the request based on a block size corresponding to the request and an available bandwidth, and sending an error packet to the first client device if the server does not have sufficient resources to satisfy the request.

2. (Original) The method of claim 1 wherein applying, by the server, one or more flow control techniques not defined by multicast TFTP comprises delaying a start of the transmission of the plurality of packets.

3. (Original) The method of claim 1 wherein applying, by the server, one or more flow control techniques not defined by multicast TFTP comprises:

determining whether a request to download the file is a subject of an existing multicast download session; and

causing the multiple client devices to join an existing multicast group corresponding to the existing multicast download session.

4. (Original) The method of claim 1 wherein applying, by the server, one or more flow control techniques not defined by multicast TFTP comprises modifying quality of service based, at least in part, on resource conditions.

5. (Original) The method of claim 4 wherein modifying the quality of service comprises one or more of: modifying block size and modifying timeout length.

6. (Original) The method of claim 1 wherein applying, by the server, one or more flow control techniques not defined by multicast TFTP comprises reducing a packet transmission rate.

7. (Original) The method of claim 1 wherein applying, by the server, one or more flow control techniques not defined by multicast TFTP comprises retransmitting a most recently transmitted packet in response to receiving an unexpected packet.

8. (Currently Amended) A server device comprising:
a network interface to receive messages from one or more client devices including requests to download a file stored by the server device;
a memory coupled with the network interface to store the file; and
a processor coupled with the memory and the network interface to receive a request from a first client device of the one or more client devices to multicast the file as a plurality of packets of data from the server device to the one or more client devices by executing a multi-threaded application with at least one thread monitoring a port designated for receiving multicast requests, execute at least three request handlers to manage requests from remote devices, the at least three request handlers comprising an upload request handler, a multicast download request handler and a unicast download request handler, transmit the plurality of packets of data from a server to the one or more client devices using a multicast trivial file transfer protocol (TFTP) as a TFTP-compliant flow, and apply one or more flow control techniques not defined by the multicast TFTP to the TFTP-compliant flow, wherein the flow control comprises at least determining whether the server device has sufficient resources to satisfy the request based on a block size corresponding to the request and an available bandwidth, and sending an error packet to the first client device if the server does not have sufficient resources to satisfy the request.

9. (Original) The server of claim 8 wherein the one or more flow control techniques not defined by multicast TFTP comprises delaying a start of the transmission of the plurality of packets.

10. (Original) The server of claim 8 wherein the one or more flow control techniques not defined by multicast TFTP comprises determining whether a request to download the file is a subject of an existing multicast download session, and causing the multiple client devices to join an existing multicast group corresponding to the existing multicast download session.

11. (Original) The server of claim 8 wherein the one or more flow control techniques not defined by multicast TFTP comprises modifying quality of service based, at least in part, on resource conditions.

12. (Original) The server of claim 11 wherein modifying the quality of service comprises one or more of: modifying block size and modifying timeout length.

13. (Original) The server of claim 8 wherein the one or more flow control techniques not defined by multicast TFTP comprises reducing a packet transmission rate.

14. (Currently Amended) A computer-readable medium having stored thereon instructions that, when executed by one or more processors, cause the one or more processors to:

receive a request from a first client device to multicast a file as a plurality of packets of data from a server device to multiple client devices by executing a multi-threaded application with at least one thread monitoring a port designated for receiving multicast requests;

execute at least three request handlers to manage requests from remote devices, the at least three request handlers comprising an upload request handler, a multicast download request handler and a unicast download request handler;

transmit the plurality of packets of data from a server to the multiple client devices using a multicast trivial file transfer protocol (TFTP) as a TFTP-compliant flow; and

apply, by the server, one or more flow control techniques not defined by the multicast TFTP to the TFTP-compliant flow, wherein the flow control comprises at least determining whether the server device has sufficient resources to satisfy the request based on a block size corresponding to the request and an available bandwidth, and sending an error packet to the first client device if the server does not have sufficient resources to satisfy the request.

15. (Original) The medium of claim 14 wherein the instructions that cause the one or more processors to apply, by the server, one or more flow control techniques not

defined by multicast TFTP comprise instructions that, when executed, cause the one or more processors to delay a start of the transmission of the plurality of packets.

16. (Original) The medium of claim 14 wherein the instructions that cause the one or more processors to apply, by the server, one or more flow control techniques not defined by multicast TFTP comprise instructions that, when executed, cause the one or more processors to:

determine whether a request to download the file is a subject of an existing multicast download session; and

cause the multiple client devices to join an existing multicast group corresponding to the existing multicast download session.

17. (Original) The medium of claim 14 wherein the instructions that cause the one or more processors to apply, by the server, one or more flow control techniques not defined by multicast TFTP comprise instructions that, when executed, cause the one or more processors to modify quality of service based, at least in part, on resource conditions.

18. (Original) The medium of claim 14 wherein the instructions that cause the one or more processors to apply, by the server, one or more flow control techniques not defined by multicast TFTP comprise instructions that, when executed, cause the one or more processors to reduce a packet transmission rate.

19-22. (Canceled)